

IN THE CLAIMS

23. (Twice Amended) A process for the adhesive-free production of polymeric components, including the steps of:

- c/
- (a) preparing a polymeric substrate which, on at least one surface, has depressions forming micro- and/or nanochannel structures,
  - (b) applying, by uniform pressure in the range of from 0.1 to 1000 kg/cm<sup>2</sup> extending over said surface, a polymeric covering to said surface,
  - (c) slowly heating said substrate, with said covering applied by pressure, to a temperature which is at least as high as the glass transition temperature of at least one of said substrate ~~and/or~~ and of said covering and holding the substrate with the covering at such temperature for at least 15 minutes, for the bonding thereof, and
  - (d) cooling the substrate for a up to 30 seconds.

24. (previously added) The process as claimed in claim 23, wherein the polymeric substrate and the polymeric covering are selected from the group consisting of acrylic polymers, polycarbonates, polystyrenes, and also copolymers and mixtures of these.

25. (currently amended) The process as claimed in claim 24, wherein the polymeric substrate and the polymeric covering are selected from the group consisting of acrylic polymers and polymers, ~~in particular of polymethyl methacrylate polymers, or of~~ polymeric carbonates.

26. (previously presented) The process as claimed in claim 23, wherein the substrate has depressions with a width or/and depth within the range from 10 nm to 2 mm.

27. (previously presented) The process as claimed in claim 26, wherein the substrate has

depressions with a width or/and depth within the range from 100 nm to 1 mm.

28. (previously presented) The process as claimed in claim 27, wherein the substrate has

depressions with a width or/and depth within the range from 1  $\mu\text{m}$  to 500  $\mu\text{m}$ .

29. (previously presented) The process as claimed in claim 23, wherein substrate and

covering are selected from among polymeric materials of the same type.

30. (previously presented) The process as claimed in claim 23, wherein at least the

covering is selected from among optically transparent materials.

31. (currently amended) The process as claimed in claim 23, wherein the polymeric

covering and the substrate are combined by at a pressure of from 0.2 to 20 kg/cm<sup>2</sup>.

32. (currently amended) The process as claimed in claim 31, wherein the pressure

applied is ~~within the range from 1 to 1000~~ 2 kg/cm<sup>2</sup>.

33. (previously presented) The process as claimed in claim 23, wherein the duration of

heating is within the range from 0.5 to 3 h.

34. (previously presented) The process as claimed in claim 23, wherein the heating

temperature is not more than 5°C above the glass transition temperature.

35. (previously presented) The process as claimed in claim 23, wherein the substrate and

the covering present thereupon are held within the region of the heating

temperature for a period of at least 15 min.

C 36. (previously presented) The process as claimed in claim 35, wherein the substrate and covering present thereupon are held within the region of the heating temperature for a period of at least 30 min.

37. (previously presented) The process as claimed in claim 35, wherein the holding temperature is within  $\pm 3^{\circ}\text{C}$  of the heating temperature.

38. (previously presented) The process is claimed in claim 23, wherein the duration of the cooling is at least 1 h.

39. (previously presented) The process as claimed in claim 38, wherein the duration of the cooling is at least 2 h.

40. (canceled)

41. (canceled)

42. (canceled)

43. (canceled)

44. (canceled)

45. (new) The process as claimed in claim 24, wherein the polymeric substrate and the polymeric covering are polymethyl methacrylate polymers.

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